

## Abstract

### Process for depositing layers of zirconium oxide using soluble powders

A sol-gel process for producing layers of zirconium oxide is described which comprises the following stages:

(i) production of a soluble, zirconium-containing powder by:

(a) reaction of a zirconium alcoholate of the general formula  $Zr(OR)_4$ , in which the residues R are the same or different and represent straight-chain, branched or cyclic alkyl or alkenyl residues with 1 to 10 carbon atoms, which optionally exhibit one or more carbonyl and/or ester and/or carboxyl functions, with one or more polar compounds having complexing, chelating properties,

(b) heating the solution,

(c) mixing the solution with water, optionally in the presence of a catalyst,

(d) concentrating the solution until a powder is obtained,

(ii) dissolving the powder forming a sol,

(iii) coating a substrate with the sol, and

(iv) annealing the coated substrate.